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CENTRAL INTELLIGENCE AGENCY
INFORMATION FROM
FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT
CD NO.

50X1-HUM

COUNTRY	USSR
SUBJECT	Economic; Technological - Foundry equipment
HOW PUBLISHED	Daily newspapers and monthly periodical
WHERE PUBLISHED	USSR
DATE PUBLISHED	16 Feb - 10 Aug 1950
LANGUAGE	Russian

DATE OF INFORMATION 1950

DATE DIST. 8 Nov 1950

NO. OF PAGES 5

SUPPLEMENT TO REPORT NO.

THIS IS UNEVALUATED INFORMATION

SOURCE Newspapers and periodical as indicated.

PRODUCTION OF NEW FOUNDRY EQUIPMENT OFFSET BY INEFFICIENT USE

MAKES PARTS FOR CITY ENTERPRISES -- Tbilisi, Zarya Vostoka, 16 Feb 50

The Tbilisi "Tsentrolit" Plant casts parts for many enterprises of the city, including mounts for the DIP-300 machine tool, produced by the Machine-Tool Building Plant imeni Kirov.

TURN TO NEW SMELTING METHOD -- Petrozavodsk, Leninskoye Znamya, 30 Apr 50

First steps have been taken at the Petrozavodsk Onega Plant in applying a new method in smelting pig iron. Under it, air blown into the cupolas is enriched with oxygen.

Reduction in the amount of primary metal put in the charge, and the re-use of burned molding sand, have cut costs without the least sacrifice of quality.

NEW MACHINE MAKES HIGH-QUALITY MOLDS -- Moscow, Vestnik Mashinostroyeniya, No 5, May 1950

In 1949, the Moscow Krasnaya Presnya Plant put out the first model of the new 243 pneumatic molding machine. The working plans were drawn up in the Central Designing Bureau for Foundry Equipment. The machine answers foundry demands for technology, simplicity of design, and ease of operation.

In spite of the great size of flasks it handles, its considerable load capacity, and deep draw, the machine turns out high-quality molds. This is largely due to the even rise of the arms of the draw mechanism, which rides up against a counterweight. The four lift pins are yoked in pairs of two to the small lift pistons located on opposite sides of the base. The movement of these pistons is coordinated, which is an additional factor insuring a smooth lift.

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The jolt and draw mechanisms are mounted on the same base. The jolt piston is screwed to the jolt table and housed in a cylinder located in the center of the base. On the four corners of the frame are removable guides, which prevent the table from rotating around the axis of its piston during jolting. The height of jolt is regulated by adjusting the reach of a vertical rod, which connects the jolt table to the jolt valve. Two vibrators affixed to the lower side of the table aid in removing the pattern from the flask. The impact of the table during jolting is absorbed by rubber shock absorbers secured to the frame below the table.

To one side of the machine is the control column, on which are mounted the jolt-frequency valve, the vibration and draw-distance controls. The reservoir from which oil is forced under air pressure for lubrication of the machine is also located on the control column. Specifications are as follows:

Weight (kg)	3,400
Dimensions (mm)	2,600 x 1,100 x 1,600
Maximum dimensions of flasks handled	
Length (mm)	1,400
Width (mm)	1,000
Height (mm)	400
Travel of draw (mm)	400
Distance between lift arms (mm)	100-1,000
Compressed air working pressure (atm)	5.5-6
Greatest lift force at 6 atm pressure (kg)	1,500
Productivity of machine under full mechanization of processes in the molding section (flasks/hr)	15

Moscow, Vestnik Mashinostroyeniya, Aug 50

The Krasnaya Presnya Machine Building Plant has begun series production of the new mark 266 molding machine. The machine exerts both jolt and squeeze action on the flask and performs ram removal of flask.

The machine's base houses the squeeze piston, which in turn houses the jolt piston, cast in one piece with the jolt table. On opposite sides of the base are the two cylinders for raising the draw frame. An arm secured to the upper end of a heavy column mounted at one end of the machine can be swung over the table, to hold the squeeze head in place. A rod projecting downward from this arm can be locked to hold the squeeze head in place, while at the same time, it automatically turns on the air pressure. All basic cycles of the machine are mechanized and automatic. Specifications are as follows:

Draw frame	
Length	Unlimited
Width (mm)	650

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Maximum size of flask handled	
Length (mm)	600
Width (mm)	600
Height (mm)	250
Height of draw	250
Maximum force exerted at 6 atm (kg)	400
Productivity of machine under full mechanization (flasks/hr)	40
Length of machine (mm)	1,800
Width (mm)	1,750
Height (mm)	2,215
Weight (kg)	2,750

URALS FOUNDERS TO GET NEW MACHINES -- Yerevan, Kommunist, 28 Jul 50

The Novo-Kramatorsk Plant imeni Stalin in Kramatorsk has designed and built two new heavy molding machines, each of which will replace the labor of nearly 100 workers. More of these machines will be built, and the first consignment is to go to the Urals area.

SAYS FOUNDRIES MUST IMPROVE TECHNOLOGY TO SAVE METAL -- Leningradskaya Pravda, 10 Aug 50

Foundries of Leningrad plants ought to play the leading role in the effort to save metal and other material. Unfortunately, however, application by all enterprises of the advanced technology represented by chill casting, precision casting, die casting, and centrifugal casting is far from realization. Furthermore, there is a great deal of room for application of even the most elementary technological messures.

Most glaring of all shortcomings is the great loss from rejects in many of the foundries. In the Krasnaya Vagranka Plant, the Plant imeni Lepse, and other plants, rejects amount to 10 percent of the castings. Plants of the city lose several hundred tons of metal in rejects each month. A great number of the castings are not discovered to be faulty until after they have gone to the machine shops.

One of the main causes of rejects in casting is the absence of carefully thought out and applied technology. In the Lentrublit Plant, for example, about one half the parts are cast by other than approved methods. It is not surprising that rejects here exceed all permissible norms. The situation in a number of other enterprises is not much better. In the foundry of the Plant imeni Lenin, questions of technology are resolved as they arise, by oral directions.

Another important cause of rejects is the carelessness of workers in preparing the charge. This leads to interruption of the smelting, and cooling of the metal.

Careless tamping of molds, improper pouring, lack of attention in dust removal when reconditioning used mixtures are common faults. Another is lack of attention to the structure of the casting. This has an especially adverse effect on the quality of shaped steel castings.

Much can be done by the plant laboratories in the fight against rejects. The laboratory specialists should put into application such techniques as x-ray and magnetic tests, statistical checking methods, and other scientific approaches to the problem. For each new design, a test casting should be made and analyzed.

The number of rejects may also be reduced through subsequent measures to remedy the flows. The Kirov Plant has been particularly successful in this technology. Here such practices as welding, coating with copper and varnish, and cementing with special pastes are in effect. Good results are also obtained through metalizing defective castings.

Production of castings having minimum allowances is a goal all foundries should strive for. It calls for thorough mastery of pattern making. Patterns of light alloys should be more widely used, especially for heavy parts. It has been found from experience that with careful preparation, metal patterns can be cast which require no more subsequent processing than cleaning. These patterns not only save metal, but also insure great accuracy of the casting.

In some plants, the pattern makers themselves determine the amount of shrinkage allowance. This is a most unsatisfactory procedure. These allowances should be determined by specialists.

The reduction of allowances is also obtained by improved methods of molding. Application of machine molding in small series production should aid in attaining optimum dimensions. Centrifugal casting, die casting, and the so-called precision casting can play a vital role too. The precision method permits production of castings of complex configuration, with an accuracy measured to hundreds of parts of a millimeter, which almost renders subsequent machining unnecessary.

Still another means of saving metal is, unfortunately, rarely applied by foundry workers. This is use of scrap from machine shops, especially chips. These amount to 20-30 percent of the weight of the casting. It is possible to smelt charges consisting of one-third iron chips (in briquettes) without vitiating the quality of the metal. Plant and centralized briquette stations should be set up to handle this.

Care of patterns in the foundries and in stock is at present unsatisfactory. In a number of plants there are no special storage spaces for patterns. Consequently, much wood is wasted in making new patterns, not to mention labor. In view of this situation, a molder at the Elektrosila Plant began a campaign for cutting down overhead expenses. The end was accomplished through care in handling the patterns. One worker was able to use the same pattern for making 65 molds for a panel for a heavy machine, whereas such a pattern was formerly good for only 50 molds. Expenditure in repairing the patterns was cut 25 percent. This effort in saving should be an example for all foundries.

More efficient utilization of flasks is another field for economy. Proper selection of dimensions and design, and care in preparation are important. There should be full interchangeability.

Expenditure of molding sand can be curtailed by more closely matching the flask size to the size of the part to be cast. Casting small parts in large flasks not only wastes molding sand, but labor as well. Molding material may also be saved by exercising greater care in reconditioning used sand.

Economy can be observed in the use of auxiliary materials -- refractory material, hooks and pegs, and wires. Norms should be set for their use and strictly observed.

There are many ways by which a foundry may save fuel. By preheating the cupola, the founders of the Plant imeni Sverdlov saved 60 tons of coke in a year on one 3-ton cupola.

Additional blowing through a second series of tuyeres set up in the cupolas permits a more efficient use of fuel and at the same time raises the temperature of the metal produced. Many enterprises are able to utilize the heat of escaping cupola gases.

Many foundries are backward in their drying technolgy. A great number of old chamber furnaces operate without internal recirculation, and sometimes even with smoky gases escaping from the dryer. Simple alteration of the smoke flue and introduction of multiple natural recirculation not only will save fuel, but will improve, the efficiency of the dryer.

There are still great losses of working time among the founders -- no less than 5 percent of the over-all time. Thus, every founder loses about one half an hour per shift. Most frequently these losses are caused by lagging supply of metal and molding sand, poor planning of maintenance repairs, and general production planning.

Organization of special preparation storerooms cuts down the losses of working time. Workers of the storerooms should supply the working areas with patterns, all ready and checked, and with core boxes and other equipment.

PARTY GROUPS WORK TO BOOST PRODUCTION -- Leningradskaya Pravda, 3 Aug 50

Efforts of the party groups in the Leningrad Kirov Plant are being directed toward increasing production in smelting and founding.

These party groups have been the initiators in the acquisition of additional crushers for the core-mixture section of the foundry. They have estimated that an increase in the volume of the molding machines would increase the output of steel castings 20-30 percent. The party group is convinced that the potentialities of these machines, which were designed and built by the shop and installed in place of the obsolete US models, are not being fully exploited.

In the electric-furnace shop, the party group was instrumental in getting representatives of the Polytechnic Institute to repair the transformer, thus saving electric energy, keeping its expenditure within the exacting norm set by the Ministry last year. A new type of electrode was installed in the furnaces, which sped the smelting process and saved even more electricity.

There is still a big delay between tapping and charging the furnaces, which calls for improvement of tapping techniques and mechanization of the charging process.

The party group in the electric-furnace shop should be divided into three sections for greater efficiency, since the shop is run in three shifts.

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